Knowledge based urban development lessons from a non-western country: the Malaysia experience

Muna Sarimin[1*] and Tan Yigitcanlar[2]

[1]School of Civil Engineering and the Built Environment, Queensland University of Technology, Brisbane, Australia/ Department of Town and Regional Planning, University Technology MARA, Shah Alam, Malaysia

[2]School of Civil Engineering and the Built Environment, Queensland University of Technology, Brisbane, Australia
muna.sarimin@student.qut.edu.au, tan.yigitcanlar@qut.edu.au
**Corresponding author*

Abstract

Knowledge based urban development (KBUD) is seen as a new paradigm in urban planning and development which is now being implemented across the globe in order to increase the competitiveness of cities and regions. The KBUD concept has been widely applied in western and more developed countries over the last decade, and many have been proven successful. This paper, however, aims to provide an overview of the KBUD exercise in a context of a non western country scenario—Malaysia. Literature suggests that the urban development process in non western countries is different and very much focusing on physical elements. Whether this is the case or otherwise, this paper scrutinises the project of Multimedia Super Corridor (MSC), Malaysia, which is regarded as one of the first large scale manifestations of KBUD exercise in South East Asia. Based on development policies analysis and results of the interviews with the major stakeholders, this paper investigates the application of KBUD concept within the Malaysian context by examining the development and evolution of the city of Cyberjaya—the leading intelligent city of the MSC project. In the light of the literature and case findings, the paper provides recommendations and lessons learned, on the orchestration of KBUD, for other non western cities and regions that are working hard to develop KBUD strategies, strengthening their sustainable socio-spatial policies and seeking a global recognition.

Keyword

Knowledge based urban development, Multimedia Super Corridor Malaysia, Cyberjaya, Sustainable development, Urban Planning

1. Introduction

The 21st century has marked the beginning of the new advancements in the field of information and communication technology (ICT). This rapid development of ICTs has made a significant impact on the overall socio-economic fabric of cities and created an urgent need for urban planners to explore new ways of strategising planning and development that encompass the needs and requirements of the economy and society. The era of knowledge economy further placed knowledge to be the most crucial factor for national, regional and local economic development. Advances in ICTs are also inevitably making societies and cities increasingly knowledge-based, responsive and dynamic in order to answer to the needs of residents and to ensure their quality of lives. The nature of the urban development has, therefore, started to change accordingly as activities in the knowledge sector have become more important and they required conditions and environments which are different from the commodity-based manufacturing activities (Knight, 1995).

At that instance, knowledge based urban development (KBUD) is seen as a new approach in managing urban planning and development in order to ensure that cities are competitive in the global market. KBUD is a new form of urban development for the 21st century that could potentially bring both economic prosperity and sustainable socio-spatial order to the contemporary city (Yigitcanlar, 2007). In order to realise a KBUD agenda, Yigitcanlar and Velibeyoglu (2008) suggest that cities need to capitalise more on knowledge infrastructure (e.g. universities, research and development institutes), concentrate on well educated people (e.g. knowledge workers), focus more on technological, mainly electronic, infrastructure (e.g. ICT), and make connections to the global economy (e.g. international companies and finance institutions for trade and investment).

To a great extent, KBUD was initially triggered by the success of Silicon Valley and Cambridge Science Park in the 1970s, which has led to the goal of urban development focusing on developing technopoles or industrial parks to make optimal utilisation of technological resources in the 1980s (Castle and Hall, 1994). Since then, cities in more developed countries such as Manchester, Barcelona, Melbourne, Delft and Austin have set the trends in embracing knowledge as part of the cities development strategies (Wang, 2009). KBUD has become more attractive because it relates to the interest of the city administrations in regional development policies by emphasising the development and advancement of technologies and socio-economic activities (Oh, 2002). KBUD has also caught the attention of international organisations, city administrations, research communities and practitioners during the last few years. Major international organisations such as World Bank(1998), European Commission (2000), United Nations (2001) and OECD (2001) have adopted knowledge management frameworks in their strategic directions regarding global development. This array of strategies indicates the strength of the link that has emerged between knowledge management and urban development (Komninos, 2002; Ergazakis et al., 2006). The significant increase of KBUD strategies for the pursuit of metropolitan competitiveness of region is also evident in an OECD perspective (OECD, 2005). The popularisation of the KBUD has fuelled many localised urban development strategies and actions within many cities throughout the world. It includes those in non western countries and regions, which are still in the process of industrialisation such as Malaysia, Taiwan, South Korea, Brazil and China where cities development are prioritised in the national development strategies .

In the case of Malaysia, the goal of KBUD is taken seriously by policy-makers. Malaysia, being a developing country relies heavily on the manufacturing-led industries for the economic growth due to her rich natural resources and relatively low-cost labour force. However, the structural transformation of the global economy which focuses on knowledge and human capitals has challenged Malaysia to concentrate on activities with a higher level of value addition. In Malaysia, the shift to the knowledge economy is part of a wider plan to achieve the objective of the National Vision for 2020 by pushing Malaysia to achieve a level at par with the developed nations in terms of economic performance and technological capability (Mohamad, 1996). With the move towards the knowledge economy and knowledge-based development, Malaysia aims to achieve sustainable gross domestic product (GDP) growth rates in the long run with knowledge playing a dominant role in driving productivity and sustaining economic growth (Economic Research Services Department, 2000). Malaysia needs to successfully transform herself into a knowledge economy where its growth will be lifted to a new and higher trajectory, which is one of the key requirements for Malaysia to become a developed nation. This shift offers an opportunity for economic growth and prosperity, as well as bringing her faster to the achievement of the Vision 2020 goals. The most significant tangible evidence of Malaysia's commitment to the knowledge economy is the Multimedia Super Corridor (MSC) project, which is the largest KBUD attempt in Malaysia.

This paper aims to provide an overview of and lessons learned from the MSC project, being the most ambitious KBUD manifestation in South East Asia. It scrutinises the project of Multimedia Super Corridor (MSC), Malaysia, which is regarded as one of the first large scale manifestations of KBUD

exercise in South East Asia. Based on physical observation, development policies analysis and results of the interviews with the major stakeholders, this paper investigates the application of KBUD concept within the Malaysian context by examining the development and evolution of the city of Cyberjaya—the leading intelligent city of the MSC project. In the light of the literature and case findings, the paper provides recommendations and lessons learned, on the orchestration of KBUD, for other non western cities and regions that are working hard to develop KBUD strategies, strengthening their sustainable socio-spatial policies and seeking a global recognition.

Following to this introduction section, the second section investigates the implementation of the KBUD concept within the Malaysian context. The next section discusses the development and evolution of MSC Malaysia and Cyberjaya. The subsequent section scrutinises MSC by focusing on strategies, implementation policies, infrastructural implications, and agencies involved in the development and management of the corridor in Cyberjaya. The final section provides generic recommendations in the light of the MSC experience, on the orchestration of KBUD, for other cities and regions in developing countries seeking knowledge-based development.

2. Knowledge based urban development in Malaysia

KBUD is spurred by the growth of knowledge economy, which refers to the generation of income through the creation, production, distribution and consumption of knowledge and knowledge-based products (Yigitcanlar et. al., 2008a; 2008b). The outputs of the knowledge economy are not necessarily raw materials and production of quantified goods, but also highly skilled and educated labour force producing abstract goods such as information, software and management, and transferring skills and knowledge particularly via the internet and other online vehicles. In other words, the traditional factors of production (i.e. land, labour and capital) are now strongly complemented with information and knowledge in the new knowledge economy (Cooke, 2001; Hearn and Rooney, 2008).

Malaysia's economy has been going through a structural transformation since early 1990s. The transformation has established a transition pace for the economy dominantly dependent on agriculture and primary commodities to move forward to a manufacture-based, export driven economy spurred by high technology and capital-intensive industries (Ramasamy et. al., 2004). Emergence of the knowledge era, where knowledge replacing physical and natural resources as the key ingredient of economic development, has provided a new platform for Malaysia to move forward to achieve a more sustainable economic and socio-spatial growth and become globally competitive. Thus, basic foundations of the knowledge economy have been set in Malaysia's national development policies. The foundation is the concentration on the key areas including human resource development, science and technology, research and development, physical info structure, and financing and equity, which are the fundamental elements of building the knowledge economy and minimising the digital divide (Jaffee, 1998). The shift to the knowledge economy is also a part of a wider plan to achieve the objectives of the National Vision of 2020. This vision was delineated by the Third Outline Perspective Plan which states that the knowledge economy will provide a platform for Malaysia to sustain a rapid rate of economic growth, enhance global competitiveness, and strengthen Malaysia's capability to innovate, adapt and create indigenous technology. The foundation initiatives for the knowledge economy in Malaysia started in the mid 1990s with the launch of her National ICT Agenda (NITA) and KBUD initiatives (i.e. the Multimedia Super Corridor Project) (Economic Planning Unit, 2001).

While the NITA objectives are very much geared towards the formulation of strategies and promotion of ICT utilisation and development, the KBUD initiatives are aimed at creating an ideal ICT

and multimedia environment as well as a global test bed to enable Malaysia to be in the global competition to attract knowledge workers and industries and businesses. The basic physical infrastructures (e.g. telecommunications) for the KBUD initiatives were completed in 1999. In addition to the telecommunications infrastructure, there are also five designated cyber cities (i.e. Kuala Lumpur City Centre, Kuala Lumpur Tower, Technology Park Malaysia, Cyberjaya and Malaysian Technology Development Corporation, University of Putra Malaysia Incubator Centre) which played a critical role on the achievement of KBUD goals. While progressing further towards the knowledge economy, Malaysia has started the experience of such development on the knowledge accumulated from the implementation of the KBUD initiatives since mid 1990s, which has marked the beginning of the era of KBUD in Malaysia. KBUD initiatives are seen as the most significant tangible evidence of Malaysia's commitment to the knowledge economy. The corridor development project along with NITA also serves as a catalyst to expand knowledge economy, in other words, ICT-related industries, by creating an attractive and suitable environment for the development of ICT industry in Malaysia.

The most relevant context of KBUD has been embedded in the sixth challenge of the Vision 2020 of Malaysia: "*the challenge is to establish a scientific and progressive society, a society that is innovative and forward looking, one that is not only a consumer of technology but also a contributor to the scientific and technological civilisation of the future*" (Economic Planning Unit, 2006:39). The Vision 2020 includes the planning and provision of ICT and telecommunication infrastructure in a multi-billion dollar urban mega-KBUD-project (i.e. the Multimedia Super Corridor Project). It is intended to bring Malaysia to become a united nation, with a confident Malaysian society, infused by strong moral and ethical values, living in a society that is more democratic, liberal and tolerant, caring, economically just and equitable, progressive and prosperous, and in full possession of an economy that is competitive, robust and resilient. Therefore, Malaysia needs to successfully transform itself into a knowledge economy where its potential growth will be lifted to a new and higher trajectory (Huff, 2005). This will offer unparalleled opportunity for economic growth and prosperity, as well as bringing the country faster to the achievement of the Vision 2020 goals.

Unlike similar KBUD projects in other developed countries, Malaysia is explicitly attaching aspirations for both national development and national identity to it. As envisioned by the Malaysian Government, the mega-KBUD-projects "*will not be just a physical location, or just another industrial or technological park, and it is not a far eastern imitation of the Silicon Valley, [but] it represents a new paradigm in the creation of value for the [knowledge era]"* (Mohamad, 1998:107). Malaysia envisioned that KBUD initiatives will be the best platform to uplift the nation to be at par with the global aspirations in the era of knowledge economy. KBUD initiatives will be a unique form of KBUD that will incorporate economic goals as well as the socio-spatial vision of the country. As noted by Mohamad (1998) that Malaysian KBUD initiatives are attempts to create environments for testing both the technology and the way of life itself.

Taylor (2003) states that Malaysia's long term objectives of shifting Malaysia into the knowledge era are reflected in the various development plans. The fundamental strategy is to transform the nation into an information-based society, and to move away from the previous focus on resource-based industries. In this respect, the Malaysian government recognises the importance of shifting its investments to intellectual capital and skilled manpower. Malaysia has always placed knowledge as a top priority in economic and social development. These will be translated into the policies incorporated in the national social and economic plans such as the five year Malaysia Plan and Outline Perspective Plan. In the Ninth Malaysia Plan knowledge development is placed as the second of five priority development thrusts. Malaysian planning system is very much based on the British plan-led system where future spatial development of the country is directed by policies outlined in the hierarchical order of plans (i.e. National Physical Plan, Structure Plans and Local Plans). These development plans are prepared parallel to the aspirations of Malaysia which are spelt out in the

national economic and social plan. As such the direction of future spatial development in Malaysia is foreseen to correspond to the vision of KBUD.

Current policies indicate that Malaysia continues to nurture the elements of knowledge in the future development of the country (Al-Furaih et al., 2007). This future direction was envisioned by the Prime Minister in his speech at the Symposium of Knowledge Cities. He emphasised on the needs to have "*the physical infrastructure to cater for greater knowledge acquisition, embarking on initiatives that would attract value added investments into the city through technology transfer and incorporating learning and knowledge culture among the city dwellers"*. He also added that a "*knowledgeable population is a key in fostering a knowledge-based economy which able to bring Malaysia to a greater height in development and progress".*

3. Multimedia Super Corridor and Cyberjaya

The largest Malaysian KBUD initiative is the Multimedia Super Corridor Project (MSC). It covers an area of about 750 sq km and is a hub designed to promote multimedia products and services by bringing together the legislative framework and next generation telecommunications infrastructure. The aim of the MSC project is to create a world class urban corridor with state-of-the-art multimedia infrastructure, efficient transportation system and an attractive living environment to attract knowledge workers and industries to invest and operate within the area. The corridor is a cluster of seven distinctive functional zones within the Klang Valley (Figure 1). There are two intelligent cities i.e. Putrajaya and Cyberjaya. While the former acts as a new federal administrative centre and electronic government, the latter is a development hub of ICT and multimedia companies, professional and students (Mukhtar, 2008). There is an airport city which serves as a service centre to support Kuala Lumpur International Airport and aeronautical services centre. A nucleus for local ICT small and medium-scaled enterprises (SMEs) is located in the Cyber Village. Tele-Suburb is the residential zones which comprises of smart homes, smart schools and smart neighbourhood local centres. High-Technology Park is the location for industrial related activities and they include the high-tech industry, institution and R&D zones. There is also a R&D centre which places a collaborative cluster of academic institutions and corporate R&D Centre at the heart of MSC (MDec, 2008).

The leading intelligent city of MSC—Cyberjaya was officially launched in May 1997. It covers an area of approximately 7,000 hectares and is designed to provide infrastructure and facilities to support multimedia industries in the MSC. Cyberjaya is planned to accommodate approximately 240,000 residents and a working population of 10,000 foreign knowledge workers. The development components of Cyberjaya consist of designated zones for: housing; enterprise; open space and greenery; institutions, and: commerce and businesses (Federal Department of Town and Country Planning, 2005; 2006). The development aims to create a multimedia catalyst centre for global R&D and design, with the capacity to be the operational headquarters for multinational firms. In achieving a world class status, all developments in Cyberjaya and the MSC area are governed as whole by a set of guidelines, comprising of local plans and urban design guidelines. In order to make the corridor more attractive to local and international investors, a number of policies are developed.

The first policy was focusing on the development of the physical infrastructure including Kuala Lumpur City Centre, Kuala Lumpur International Airport and integrated logistics hubs, rapid rail link to Kuala Lumpur, a smart highway and two intelligent cities (i.e. Cyberjaya and Putrajaya). The second one involves the execution of laws, policies and practices, which are purposely designed to encourage electronic commerce, facilitate the development of multimedia applications. There were

also a policy for the development of high-capacity telecommunications and logistic infrastructure, which is built on up to 10 gigabit digital optical fibre backbone and using the ATM switches to provide optic fibre connections to buildings. This network has a five gigabit international gateway with direct links to the US, Europe and Japan as well as the other nations in South East Asia. The final policy also highlights the need for a high powered one-stop-shop, the Multimedia Development Corporation (MDeC), to monitor the operation of the MSC.

With abovementioned policy and strategies in mind, for the physical planning of the MSC, ten strategic development locations have been identified: Kuala Lumpur City Centre, Kuala Lumpur Tower, Putrajaya, Cyberjaya, Kuala Lumpur International Airport, High-tech Parks, R&D, Tele-Suburbs, Airport City and Cyber Village. Beyond ICT and multimedia industries the corridor also attracted non-ICT businesses such as finance, insurance and real-estate sectors. In order to encourage the establishment of knowledge industries in the MSC, the Government offers a Bill of Guarantee for "MSC-Status" companies.

The MSC status companies are also offered both the financial and non financial incentives. The former includes five years exemption from Malaysian income tax, renewable to 10 years, or a 100% Investment Tax Allowance for up to 5 years on new investments made in MSC cyber cities (provided under the Promotion of Investment Act 1997), duty free import of multimedia equipment as well as R&D grants for local SMEs. Meanwhile there is also non financial incentives given and they include unrestricted employment of foreign knowledge workers, freedom of ownership, freedom to source capital globally, intellectual property protection, execution of cyber laws and a healthy physical environment.

Several agencies played a key role in the development and management of the MSC. These agencies are appointed by the Malaysia government to facilitate and promote the development of MSC.

a. *Multimedia Development Corporation (MDeC)* is a government-owned corporation that functions as a 'one-stop agency', focusing on ensuring the success of the MSC and the companies operating in the corridor. The main role of MDeC is to advise the Malaysian Government on legislation and policies, develop MSC specific practises, and set standards for multimedia operations (MDec, 2008).

b. *Cyberview Corporation is* a government owned company and landowner of Cyberjaya. It has been mandated by the Malaysian government to spearhead the development of Cyberjaya. It is also responsible with the physical development tasks of Cyberjaya including attending to all land administration matters, building enterprise buildings, building supporting amenities as well as undertaking necessary maintenance work (Cyberview Corporation, 2009).

c. *Setia Haruman Corporation* acts as the master developer of Cyberjaya. It was entrusted with the role to plan, design and prepare the primary infrastructure for the Cyberjaya Flagship Zone. The area covers 7,000 acres of freehold land consisting of four main zones known as enterprise, commercial, institutional and residential. Each zone is fully equipped with a host of intelligent network services and interactive broadband services (Setia Haruman Corporation, 2009).

d. *Sepang Municipal Council (SMC)* is the local planning authority for Cyberjaya. The responsibility of SMC as the local planning authority for Sepang is set out under the Local Government Act 1976, which includes 'planning, development and community services' (MDec, 2006). The functions of the local planning authority is crucially vital to deal with any planning applications and to grant planning permissions in Cyberjaya (SMC, 2008).

4. Results and Discussion

It is evident that ICTs in the knowledge era are continuously shaping the physical and economic developments, including KBUD, which are playing a major role on the development and future expansion of the infrastructure development of cities. The success of Cyberjaya, being the pioneer city in the MSC strategy, has been envied by many. Being the leading intelligent city of MSC, Cyberjaya is now seen as a self-contained intelligent city with world-class IT infrastructure, low-density urban enterprise, as well as state-of-the-art commercial, residential, enterprise and institutional developments. Many regard the city as an ideal place to live, study, work and play. The city offers a conducive living environment with convenient amenities and facilities, and being home to MNCs, knowledge workers, enterprising businesses, students and families. The planning was made in such a way to provide comprehensive infrastructure with principal emphasis on its enterprise and office development as the catalyst for the growth of ICT enterprises and the multimedia industry in Malaysia. It is also to promote Cyberjaya as the regional and global ICT hub to rival the best in the world by embracing the fundamentals of KBUD in the planning and management of the city. Its competitiveness as a global ICT hub has made Cyberjaya one of the top destinations for business support services and outsourcing in the world. The city is also expected to see a large boom in population growth over the next 10 to 15 years, with residential developments expected to reach a population of 210,000, business developments providing for up to 120,000 employees and institutional establishments providing for 30,000 students.

Today, Cyberjaya is home to many multinational companies such as Shell, HP, Ericsson, BMW, HSBC, DHL and many more. It is also the chosen location for the nation's top smart schools and institutions such as Limkokwing University College of Creative Technology (LUCCT), Multimedia University (MMU) and Cyberjaya University College of Medical Sciences (CUCMS). Not only that, many call Cyberjaya a home within its residential developments such as the exclusive Perdana Lakeview West, Perdana Lakeview East, The Serenity Garden Homes and D'Melor Condominiums, offering a wide array of homes. The township also provides a conducive physical living environment with convenient amenities such as hotel, recreation centres, community clubhouse and more. City broadband services using fibre optic network is also available in Cyberjaya enabling high speed Internet access and network solutions right to the door step.

Table 1 summarises the SWOT results of the interviews conducted with the stakeholders of Cyberjaya development.

Although there were some criticisms levied pertaining to issues related to social and cultural development, the success can be evaluated from the number of inward investments and the statistics on job creation. Bunnell (2004:148) states that *"by the infrastructural and economic criteria of its proponents, [the] MSC is perhaps the qualified success*". Lepawsky (2005) highlights that the MSC is unique and interesting as Malaysia is attaching aspirations for both national development and national identity to it, and states that the MSC "is not [only] just another physical location, or just another industrial or technological park – and it is not a far eastern imitation of the Silicon Valley, [but also] represents a new paradigm in the creation of value for the information age" (Mohamad, 1998:107, cited in Lepawsky, 2005:10). Although there are some positive outcomes, still policies on urban development in such large scale and ambitious projects take long time to materialise. Therefore, in terms of urban planning and development of the MSC, it is still early years for a comprehensive evaluation.

Besides project dynamics, physical development of the Cyberjaya is also subjected to the global economic conditions. Bunnell (2004) reminds us that the physical development of Cyberjaya suffered an inevitable delay of its supporting infrastructure due to economic recession in 1997. However, until recently the overall development of the MSC was progressing quite well when

compared to other digital districts such as Boston and Silicon Valley (Indergaard, 2003 cited in Bunnell, 2004). But unfortunately, the economic crunch beginning of 2008 has brought almost similar impact of the 1997 recession to the overall development of the MSC. Nevertheless, the MSC is a long term plan, and it is fully supported by the Malaysian Government and highly regarded as an emerging knowledge corridor. Although the Malaysian government is the architect of and has its overall say of the MSC Vision, its implementation is largely driven by the private sector.

In general, there are a number of lessons that can be learned from the development of MSC being the largest manifestation of KBUD initiative in Malaysia. Firstly, placing MSC as one of the national agendas is perhaps, the best and unique strategy in realising the success of KBUD in Malaysia. While other KBUD initiatives are locally based (e.g. Delft, Barcelona, Silicon Valley), MSC is positioned as part of the Malaysia's national development agenda. The visions of MSC were later translated into series of development plans which guide the direction of the future development for the country. This is a systematic approach in ensuring that elements of KBUD are being continuously embedded in the future socio-spatial development for the whole nation. Secondly, the present success of MSC owes much to the concerted effort by both the public and private sectors. Although the former is the chief architect of the MSC vision and the main provider for the physical and information infrastructure, its implementation is largely driven by the private sector. A high government intervention and its continuous commitment in ensuring the success of this KBUD initiative will increase the confidence of international investors. It indicates a strong commitment given by the Malaysian government against unfavourable market forces. The creation of MDeC, being a one-stop-agency to oversee the operation of MSC is seen as the institutional factor that has contributed to the success. The third lesson learned from the MSC development is that KBUD initiative has to be rightly sited and phased. The first phase of MSC which is located within the Klang Valley Metropolitan Area (KLMA) offers a unique locational advantage. The MSC has a 'unique niche' and it offers a comprehensive package with attractive surroundings and good quality of life (Taylor, 2003). The present pool of the local knowledge workers in Kuala Lumpur, the national capital region plays a big role in the early establishment of the KBUD initiative. KLMA also offer the best urban setting in Malaysia to further enhance the physical environment.

5. Conclusion

It is clearly understood that cities in a non western countries are growing much more rapidly than its counterparts. Basic challenges of urban growth involve the expansion and management of services, the collection and allocation of sufficient revenues to create infrastructure and to operate services in an adequate fashion, and the creation of a coherent planning framework for the city so that increasingly diverse populations can live together civilly and productively. In addition, especially needed is the establishment of an institutional structure that both represents the constitutive parts of the growing city while at the same time generating adequate authority to govern effectively. These are not easy tasks even for developed countries; but they are much more challenging for cities in developing countries where the majority of the population is poor, and public resources are, as a result, extremely limited. Cities in the non western countries will continue to see increasing rates of urbanization, and will continue to experience the stress of facing increased demands to provide infrastructure and create jobs without much of the needed resources and/or capacity. Implementation of KBUD will therefore be more challenging. It can be seen that the main challenges include (a) the need to keep urban planning and management flexible and ready to adapt to new developments in the economic or social front; (b) getting the best possible technical analysis; (c) pushing the agenda of excellence; (d) thinking big and long-term; (e) looking at the big picture – overall city competitiveness, labour market, environmental quality, and standing as regards capital

and human capital; (f) engaging the private sector; (g) understanding and discussion with community leaders of how much limited-resource local governments can offer; (h) establishing contracts vertically with the central government and horizontally with other municipalities. The future of globalization and urbanization will bring enormous challenges as well as opportunities to both developed and developing countriesWith the steady progress and entering its second phase, the MSC has clearly served as the best platform for the manifestation of KBUD principles and energies to move the country forward to achieve the Vision 2020 and hence, reaching the status of a developed country. The MSC is seen as the best instrument to support Malaysia to be more responsive to the threats and opportunities posed by economic globalisation, which is market driven and technology oriented. In orchestrating a successful KBUD, a comprehensive effort from all levels of government and is required to necessitate the success.

For the case of the non western countries, which have similar characteristics like Malaysia, putting the KBUD initiative as part of the national agenda is always regarded as the best strategy. What is presently needed is a continuous and sound policy monitoring in ensuring all of the MSC vision and objectives are achieved and hence making Malaysia to be more competitive in the global market. A particular attention probably is needed in the aspect of intangible factors of MSC such as the attitude and culture of the society (i.e. knowledge communities) that makes up the essence of a successful KBUD. Their input in planning and development of the physical environment is urgently required to further enhance the success of any KBUD initiative. The MSC, being the Malaysia KBUD initiative will certainly equip Malaysia to enter into the global markets by becoming an international centre for knowledge industries and businesses as well as building a knowledge-based society. Future opportunities for research with regards to MSC, being a KBUD initiative in Malaysia is immense. KBUD is a dynamic, participatory and strategic process and it requires a careful and delicate orchestration where the real success cannot happen in a short span of time, and hence a continuous evaluation and assessment are required.

References

Al-Furaih, I., Sahab, A., Hayajneh, A., Abdullah, A., Ibrahim, M. and Thalha, M. (Eds.). (2007), *Knowledge cities: future of cities in the knowledge economy*. Selangor, Malaysia: Scholar Press: pp. 73-97.

Abu- Anzeh, N. and Ledraa, T. (2007), pp 116-139, in Malaysian Institute of Planners et al (2007), Knowledge Cities, Future of Cities in the Knowledge Economy, Kuala Lumpur, Scholar Press.

Azhar, M. K. (2008), Entrepreneurship and Development, Powerpoint Slides on AIM Conference Centre, MDeC, MSC Malaysia.

Bowman, B., Nelson, K., Fertjowski, A., Prokuda, L., McCartney, R., and Limb, M. (2008), Klang Valley Regional Plan 2008 – 2028, Queensland University of Technology, Brisbane.

Bunnell, T. (2004), *Malaysia, Modernity and Multimedia Super Corridor*, London, Routledge.

Cooke, P. (2001), *Knowledge economies,* New York: Routledge.

Corey, K. and Wilson, M. (2006), *Urban and regional technology planning*, New York: Routledge.

Drucker, P. (1993), *Post-capitalist society*, New York: Harper Business.

Economic Planning Unit, (2001), The Third Outline Perspective Plan (2001-2010). Economic Planning Unit, Prime Minister's Department, Putrajata, Malaysia.

Economic Planning Unit, (2006), National Vision 2020. Economic Planning Unit, Prime Minister's Department, Putrajata, Malaysia.

Economic Research Services Department (2000), Special Economic Issue, Kuala Lumpur, Malaysia, Bumiputra Commerce Bank.

Federal Town and Country Planning, (1997a), Physical planning guidelines for the Multimedia Super Corridor (MSC): volume 1- General Guidelines. Malaysia: Ministry of Housing and Local Government.

Federal Town and Country Planning, (1997b), Physical planning guidelines for the Multimedia Super Corridor (MSC): volume 4- Cyberjaya. Malaysia: Ministry of Housing and Local Government.

Federal Town and Country Planning, (2005), National Physical Plan (NPP) 2020. Malaysia: Ministry of Housing and Local Government.

Federal Town and Country Planning, (2006), National Urbanisation Policy (NUP) 2020. Malaysia: Ministry of Housing and Local Government

Gonzalez, M., Alvarado, J. and Martinez, S. (2005), A compilation of resources on knowledge cities and knowledge-based development. *Journal of Knowledge Management* 8(5), 107-127.

Hearn, G. and Rooney, D. (Eds.) (2008), *Knowledge policy*. Northampton: Edward Elgar.

Huff, T. E. (2005) Malaysia's Multimedia Super Corridor and its first crisis of confidence in Baber, Z (ed), *CyberAsia: The Internet and Society In Asia*, Netherlands, Brill.

Knight, R. (1995), Knowledge–based development. *Urban Studies*, 32(2):225-260.

Jaffee, D. (1998), *Levels of socio-economic development theory*, London: Praeger.

Lever, W. (2002), Correlating the knowledge-base of cities with economic growth. *Urban Studies* 39(5/6), 859-870.

Lepawsky, J. (2005), Digital Aspirations: Malaysia and the Multimedia Super Corridor, FOCUS on Geography, Vol48(3).

MDeC (Multimedia Super Corridor Development Corporation) (2006), Guide For MSC Malaysia Cybercities and Cybercentres, Kuala Lumpur, Multimedia Development Corporation.

MDeC (Multimedia Super Corridor Development Corporation) (2008), MSC Malaysia National Rollout 2020. Available at: http://www.mscmalaysia.my [Accessed: 2 April 2009].

Mohamad, M. (1996). The way forward Vision 2020. Malaysia Business Council: Kuala Lumpur.

Mohamad, M. (1998), Inventing Our Common Future in Mahathir Mohamad: A Visionary and His Vision of Malaysia's Knowledge economy, Chuan N T and Abdulai D N, Subang Jaya, Pelanduk Publications.

Mohan A. V., Aliza A. O. and Kamarulzaman A. A. (2004), ICT Clusters As A Way To Materlialise A National System Of Innovation: Malaysia's Multimedia Super Corridor Flagships Electronic Journal on Information Systems in Developing Countries 16(5), pp1-18.

Mukhtar, N. (2008), Intelligent City of Cyberjaya; MSC Thesis, Cardiff, Unpublished.

Ramasamy, B., Chakrabaty, A. and Cheah, M. (2004), Malaysia's Leap into the Future: An Evaluation of the Multimedia Super Corridor, *Technovation* 24(2004) 871-883.

Setia Haruman Corporation, (2009), Setia Haruman Sdn. Bhd: The master developer of Cyberjaya. Available at: http://www.cyberjaya-msc.com/ [Accessed: 11 May 2009].

Taylor, R. D. (2003). The Malaysia Experience: The Multimedia Super Corridor in Jussawalla, M and Taylor R.D (eds) (2003) *Information Technology Parks of the Asia Pacific,* New York, M.E Sharpe.

Van Doren, C. (1992). *A history of knowledge: past, present and future*. Random House Publishing, Toronto.

Yigitcanlar, T., (2007), The making of urban spaces for the knowledge economy: global practices. In *Knowledge cities: future of cities in the knowledge economy*. I. Al-Furaih, A. Sahab, A. Hayajneh, A. Abdullah, M. Ibrahim and M. Thalha (Eds.). Selangor, Malaysia: Scholar Press: pp. 73-97.

Yigitcanlar, T., (2008), Knowledge-based development of creative urban regions: global perspectives for local actions, Knowledge International Week, Ibero-American Community for Knowledge Systems, 29-31Oct 2008, Manizales, Colombia, pp. 305-324.

Yigitcanlar, T. and Velibeyoglu, K. (2008), Knowledge-based urban development: local economic development path of Brisbane, Australia. *Local Economy*, Vol 23, No 3, pp. 197–209.

Yigitcanlar, T., Velibeyoglu, K. and Baum, S. (eds.) (2008a), *Knowledge-based urban development: planning and applications in the information era*, Information Science Reference, Hershey.

Yigitcanlar, T., Velibeyoglu, K. and Baum, S. (eds.) (2008b), *Creative urban regions: harnessing urban technologies to support knowledge city initiatives*, Information Science Reference, Hershey.

Yigitcanlar, T., O'Connor, K., and Westerman, C. (2008c), The making of knowledge cities: Melbourne's knowledge-based urban development experience. *Cities*, 25(2), 63-72.

Yigitcanlar, T., Velibeyoglu, K. and Martinez-Fernandez, C. (2008d), Rising knowledge cities: the role of knowledge precincts. *Journal of Knowledge Management*, 12(5), 8-20.